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ABSTRACT

An investigation was made of relationships between children's understanding of gender constancy, their conceptions of sex-role stereotypes, their perceptions of similarities between themselves and other children, and their schematic processing of gender-relevant choices. Forty-nine children between 36 and 73 months of age participated in a two-part interview which assessed gender constancy, knowledge and notions of flexibility in sex stereotypes, perceptions of similarities between themselves and pictured children, preferences for sex-typed toys, and schematic-based processing of toy preferences. Overall analyses indicated that children's knowledge of sex-role stereotypes for their own and the opposite sex and their preferences for sex-appropriate, neutral, and inappropriate toys were best predicted by their level of gender schematization. Gender constancy stage was unrelated to any of the dependent measures. Finally, children's perceptions of similarities between themselves and other children appeared to focus largely on gender and toy-stereotype characteristics regardless of the age, stage of gender constancy, or degree of gender schematization. Findings support the use of a gender schematic approach to sex-role socialization and challenge the use of the construct of gender constancy.
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STEREOTYPE KNOWLEDGE, FLEXIBILITY, AND GENDER CONSTANCY:

APPLICATIONS OF GENDER SCHEMA THEORY TO SEX-TYPING BY PRESCHOOLERS [1]

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RUNNING HEAD: PRESCHOOLERS' GENDER SCHEMAS

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Abstract

The present study investigated relationships between children's understanding of gender constancy, their conceptions of sex-role stereotypes, their perceptions of similarities between themselves and other children, and their schematic processing of gender-relevant choices. A total of 49 36-73 month old children participated in a two-part interview which assessed gender constancy, knowledge and notions of flexibility in sex stereotypes, perceptions of similarities between themselves and pictured children, preferences for sex-typed toys, and schematic based processing of toy preferences. Overall analyses indicated that children's knowledge of sex-role stereotypes for their own and the opposite-sex, and preferences for sex-appropriate, neutral, and inappropriate toys were best predicted by their level of gender schematization. Gender constancy stage was unrelated to any of the dependent measures. Finally, children's perceptions of similarities between themselves and other children appeared to focus largely on gender and toy-stereotype characteristics regardless of the age, stage of gender constancy, or degree of gender schematization. Our data support the utility of a gender schematic approach to sex-role socialization and call into question the utility of the construct of gender constancy.

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STEREOTYPE KNOWLEDGE, FLEXIBILITY, AND GENDER CONSTANCY: APPLICATIONS OF GENDER SCHEMA THEORY TO SEX-TYPING BY PRESCHOOLERS

D. Bruce Carter, Gary D. Levy, and John M. Cappabianca

Traditional approaches to sex-role socialization uniformly have stressed the important roles which a variety of cognitive factors (e.g., stereotype knowledge, understanding of gender-based norms, understanding of gender, etc.) play in sex-role socialization. In particular, cognitive developmental approaches have emphasized the roles of cognition and have assumed that children must possess a firm sense of the permanence of their own gender ("gender constancy") before they can attribute stereotypes to activities and behave in a sex-typed fashion (e.g., Kohlberg, 1966). Indeed, a number of research endeavors with very young children have indicated that cognitive factors similar to gender constancy are related a number of sex-typing factors, such as preschooler's attention to same-sex models (e.g., Slaby & Frey, 1975). In contrast, a number of studies have indicated that while gender constancy is correlated with other cognitive developments such as conservation skills in somewhat older (5-7 years) children (e.g., Marcus & Overton, 1978), it is unrelated to sex-typing phenomena such as sex-typed preferences (e.g., Carter & Taylor, 1985).

In contrast to traditional views of cognitive processes in sex-role socialization, the emerging views of gender schema theory (e.g., Bem, 1985) assume that appropriate gender labelling of self and others is all that is necessary before sex-typing of activities and interests can occur. Gender schema theory views the development of gender constancy as a phenomenon which merely reflects children's increasing

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understanding of the biological nature of gender and not a basic organizing principle in sex-role development. Rather, gender schema theory views the sex-typing process as resulting from children's tendencies to categorize behaviors and activities on the basis of salient features and on society's pervasive insistence on the importance of gender and gender-related differences. From this perspective, knowledge of gender constancy may be correlated with sex-typing in children's interests and behavior, but is not a prerequisite for the development of sex-typing. Indeed, while little research exists which directly assesses the development of gender schema, there are indications that children express preferences for sex-typed activities and objects long before full-blown gender constancy (as defined by the Kohlberg) would be expected to appear (cf., Kuhn, Nash, & Brucken, 1978). Unfortunately, while a number of studies have been conducted which assessed relationships between gender schema and children's memories for sex-typed events (e.g., Carter & Levy, 1983; Martin & Halverson, 1983 a; Signorella & Liben, 1984), no study to date has investigated relationships between the degree of gender schematization exhibited by children and their sex-typed preferences. The present study was designed to address this issue.

The present study was designed to assess relationships between children's gender schema, their knowledge of sex-role stereotypes, their preferences for sex-typed toys, and their knowledge of gender constancy. In line with gender schema theory, it was predicted that degree of schematization in children's understanding of gender would be predictive of their knowledge and understanding of stereotypes, and their preferences for sex-typed objects. Gender constancy was pre-

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dicted to be unrelated to any of the sex-typing variables. Finally, in contrast to predictions from a cognitive developmental perspective, it was predicted that children would evince a recognition of similarities between themselves and others based on gender and toy preferences before they exhibited a firm sense of gender constancy.

Method

Subjects and interviewers

A total of 49 children (28 males and 21 females) between the ages of 36 and 73 months ($\bar{X}$=51.6 months) participated in the present investigation. Children were interviewed by adults (2 females; 2 males) on two separate occasions separated by less than one week. Half of each of the interview sessions were conducted by females, the remainder by male interviewers.

Procedure

Children were brought individually to a small private room for each portion of the interview. In the first session, children's understanding of gender constancy and their knowledge and beliefs in the flexibility of sex-role stereotypes were assessed. Knowledge and beliefs in the flexibility of sex-role stereotypes were assessed through use of the Sex Role Learning Index (Edelbrock & Sugawara, 1978). In this measure, children are asked initially to sort 20 pictures of sex-typed (10 masculine and 10 feminine) objects into boxes labelled as being "for boys", "for girls", and "for both boys and girls". After initially sorting all objects into the boxes, the box marked "both" is removed and children are asked to sort the pictures in that box into one of the remaining boxes. Three measures emerge

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from the SERLI: children's knowledge of sex-stereotypes for the same-sex, knowledge of stereotypes for the opposite-sex, and children's notions of flexibility in stereotyping (i.e., "both" responses; see Edelbrock & Sugawara for a complete description of this measure).

The gender constancy measure employed was a modification of the original measure developed by Emmerich and his colleagues (e.g., Emmerich, et al, 1977). This measure includes three subscales assessing children's abilities to label their own and others' gender correctly ("Gender Identification"), their knowledge that desires and play preferences which are sex-atypical do not alter one's gender ("Personal Gender Permanence"), and their recognition that gender does not change due to changes in appearance ("Perceptual Gender Permanence). The first two subscales assessed children's understanding of these concepts verbally, while the third subscale involved children's conceptions of the permanence of gender despite transformations in the appearance of a pictured male or female. Prior research with this instrument (e.g., Carter & Levy, 1983; Carter & Taylor, 1985) has indicated that children can be reliably categorized into one of three stages of gender constancy representing (in order) their abilities to gender-label (Stage 1), their recognition that gender does not change due to desires or activities (Stage 2), and their abilities to maintain that gender is permanent despite perceptual transformations (Stage 3). Only one child in the present study (a 36-month old girl) was classified as being at Stage 0, i.e., was unable to label her own and others' gender reliably. Of the remaining children, 25 children (12 boys and 13 girls, mean age= 49 months) were classified as having achieved Stage 1, 20 children (6 girls and 14 boys; mean age= 54.7

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months) were classified at Stage 2, and 3 children (2 boys and 1 girl; mean age= 58 months) were classified as having achieved Stage 3.

Children completed two additional measures during the second interview. The first measure assessed both children's preferences for sex-typed toys and their degree of gender schematization. Children were shown a series of 24 line-drawings of pairs of sex-appropriate, sex-inappropriate, and sex-neutral toys. Nine of these pairs consisted of a masculine and a feminine toy, nine of two masculine, two feminine, or two sex-neutral toys, and the remainder of masculine or feminine toys paired with a neutral toy. Children were asked to indicate by pointing as quickly as possible to the toy which they most preferred. Children's expressed preferences for same-sex, opposite-sex, and neutral type toys were the first dependent variable which emerged from this measure. Response latencies (measured in milliseconds) to particular toy pairs were the second dependent variable which emerged from this task. Response latencies were expected to be affected by the nature of the toys in the particular pairs. Pairs consisting of a masculine- and a feminine-typed toy were assumed to be pairs for which the presence of a gender schema would facilitate choice (Facilitated Choice pairs), thus resulting in faster response latencies. In contrast, it was assumed that the presence of a gender schema would inhibit children's abilities to choose a preferred toy from a pair consisting of two objects of the same sex-typing, thus resulting in longer response latencies (Inhibited Choice pairs). Finally, it was assumed that the presence of a gender schema would be unrelated to children's response to pairs of toys in which gender was not a distinguishing characteristic (Schema Neutral pairs).

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After completing the toy preference task, children were shown a series of 24 line drawings of boys and girls engaged in play with sex-appropriate, sex-neutral, and sex-inappropriate toys. For each illustration, children were asked to indicate ways in which they were both similar and dissimilar to the pictured child. Children's responses to this measure were coded into one of four categories by two independent raters. The first category included responses which focused on similarities and dissimilarities based on sex of the pictured child and the second included responses which focused on similarities and dissimilarities based on the sex-typing of the toy. The third category included responses which focused on non-gender based (e.g., hair color or clothing) characteristics of the pictured child, and the fifth category included all other responses.

Results

Stereotype knowledge and flexibility. Three separate multiple regression analyses were computed to assess the strength of relationships between children's age, sex, degree of schematization (Facilitated Choice and Inhibited Choice scores), and level of gender constancy on their knowledge of sex-stereotypes for the same- and opposite-sex as well as relationships between these predictor variables and children's recognition of flexibility in sex-stereotypes. Overall, the regression equation predicting children's knowledge of stereotypes for their own sex was significant, $R^2 = .242$, $F(5,43) = 2.74$, $p < .05$. Examination of the predictors contributing significantly to the obtained equation indicated that only children's Facilitated Choice, $F(1,43) = 5.40$, $p < .05$, and their Inhibited Choice, $F(1,43) = 7.48$, $p < .01$, scores

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contributed significantly to the obtained equation (all other F's < 2). Examination of the patterns of correlations indicated that more highly schematized children were less knowledgeable about stereotypes for the same-sex than were there less schematized peers. A similar pattern emerged from the regression equation predicting children's knowledge of sex stereotypes for the opposite sex. The obtained regression was also significant, R^2 =.337, $F(5, 43)=4.38$, $p<.005$, and both children's Facilitated Choice, $F(1,43)=4.28$, $p<.05$, and Inhibited Choice, $F(1,43)=10.47$, $p<.005$, contributed to the equation. In both cases, more highly schematized children evinced a lower knowledge of sex-stereotypes for the opposite-sex. In addition, children's age, $F(1,43)=6.14$, $p<.05$, contributed significantly to the obtained equation and the contribution of sex was marginally significant, $F(1,43)=3.46$, $p<.06$. Examination of the patterns of correlations indicated that girls were knowledgeable than boys and the older children were more knowledgeable than their younger peers. Finally, the regression equation predicting children's awareness of flexibility in sex-stereotypes was also significant, R^2 =.285, $F(5,43)=3.42$, $p<.05$. Examination of the relative contributions of each of the predictors indicated, however, that only children's age contributed significantly to the obtained equation, $F(1,43)=7.09$, $p<.05$. Older children evinced a greater belief in stereotype flexibility than did their younger peers.

Sex-typing in children's preferences. Results of multiple regressions of children's sex, age in months, knowledge of sex-stereotypes for the same and opposite sex, beliefs in stereotype flexibili-

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ty, level of gender constancy, and degree of schematization on children's preferences for same-sex, opposite-sex, and sex-neutral toys indicated the following patterns of results. Overall, the equation predicting children's preferences for same-sex objects was significant, R^2 =.641, $F(7,41)=10.45$, $p<.0001$. Examination of the contributions of individual components indicated that only children's sex was a significant predictor of preferences for same-sex toys, $F(1,41)=63.57$, $p<.0001$. Both children's Inhibited Choice scores, $F(1,41)=3.10$, $p<.10$, and their knowledge of sex-role stereotypes, $F(1,41)=3.12$, $p<.10$, contributed to the equation, although neither variable reached acceptable levels of statistical significance.

Examination of the patterns of correlations indicated that boys' made more sex-appropriate choices than did girls, that more gender schematized children made more sex-appropriate choices than did less schematized children, and that knowledge of sex-stereotypes was positively associated with sex-appropriate toy choices.

Examination of the regression equation predicting children's preferences for sex-inappropriate toys indicated that the obtained equation was also significant, R^2 =.362, $F(7,41)=3.33$, $p<.01$. Examination of the individual components of the model indicated that both children's sex, $F(1, 41)=13.91$, $p<.001$, and their Facilitated Choice scores, $F(1, 41)=3.92$, $p<.05$, contributed significantly to the equation. Examination of the correlations indicated that boys and highly schematized children exhibited lowered preferences for sex-inappropriate toys than did girls and less schematized children. Finally, the

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equation predicting children's preferences for sex-neutral toys was also significant, R^2 =.538, $F(7,41)=6.82$, $p<.0001$. Examination of the contributions of the individual components indicated that children's sex, $F(1, 41)=34.85$, $p<.0001$, Facilitated Choice, $F(1,41)=5.32$, $p<.05$, and Inhibited Choice, $F(1,41)=11.62$, $p<.005$, and knowledge of sex-stereotypes, $F(1,41)=5.57$, $p<.05$, all contributed significantly to the equation. Examination of the patterns of correlations indicated that boys made fewer sex-neutral choices than did girls, that children highly knowledgeable about sex-stereotypes made fewer sex-neutral choices than did their less knowledgeable peers, and that children who were highly gender schematized made fewer sex-neutral choices than did less schematized children. None of the remaining variables were significant.

Recognition of gender and toy based differences. Examination of children's responses to questions regarding the similarity of pictured children to themselves revealed an interesting pattern of responses. First, 48% of children's responses regarding similarities and dissimilarities fell into the category of differences noted on the basis of toys. Fully 31% of children's responses focused on the sex of the child in the picture. A total of 19% of responses focused on personal characteristics of the pictured child and less than 2% of all responses were unclassified. Only 7 children failed to mention the sex of the pictured child at least once and only 4 children failed to mention either the sex of the pictured child or the toy as a basis for similarity or dissimilarity. In no case did a child indicate that a pictured child "became" the opposite sex by virtue of playing with a

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sex-inappropriate toy, despite the fact that during the gender constancy interview many of these children failed to recognize that a person's gender remains constant even when she or he plays with toys associated with the opposite sex. Examination of results of chi-square analyses indicated that children's levels of gender constancy were unrelated to the categories of similarities and dissimilarities employed. Overall, then, contrary to predictions from cognitive-developmental theories of sex-typing (e.g., Kohlberg, 1966) children's recognition of similarities and differences appeared to be independent of gender constancy.

Discussion

Results of the present study indicated that degree of gender schematization was related to a number of factors long considered important in the field of sex-role socialization. Degree of schematization was significantly related to children's preferences for sex-appropriate, sex-inappropriate, and sex-neutral toys, as well as children's knowledge of stereotypes for their own and the opposite sex. Consistent with predictions of gender schema theory, virtually all children evinced an awareness of gender-based distinctions and exhibited gender schemata which were independent of their gender constancy status. In contrast, level of gender constancy, considered by cognitive developmentalists as a prerequisite of sex-typing, was unrelated to any of the major variables in the study. Moreover, children's responses in the gender constancy interview were inconsistent with responses they made to questions regarding the similarity and dissimilarity of pictured children to themselves. Their responses in this portion of the interview indicated a recognition of gender-based

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and toy-preference based differences in addition to an awareness of the fact that gender does not change in the face of sex-inappropriate toy choices.

The inconsistency observed in children's responses to questions in the current interview leads the authors to join the ranks of other investigators (e.g., Martin & Halverson, 1983 b) in questioning the validity of measures of gender constancy. Moreover, the consistent absence of any significant relationships between gender constancy and measures of sex-typing across a number of studies (e.g., Carter & Levy, 1983; Carter & Taylor, 1985; Marcus & Overton, 1978) leads us to question the viability of the construct itself. In contrast, gender schematization appears to be a viable construct which was, at least in the present investigation, predictive of a number of gender-relevant variables. Clearly this emerging construct has great potential for explaining at least part of the process of sex-typing.

It was not at all surprising to find that degree of schematization was positively related to increased sex-typing in children's toy preferences since gender schema theory would predict that such a relationship would emerge. It was, however, surprising to discover that knowledge of sex-stereotypes was inversely related to degree of schematization. This relationship in the present data was fairly robust and remained significant even after analyses were conducted with children's age as a covariate. One possible explanation for this finding is that children with lower levels of knowledge about social rules such as those involved in sex-stereotypes may be more likely to adhere rigidly to those rules than would children with greater expe-

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rience and/or more highly developed understanding of the stereotypes. Clearly further investigations will be needed to further explicate relationships between children's knowledge of sex-stereotypes and the degree of schematization exhibited in their preferences.

Overall, our results support the notion that gender schema may form the basis for early sex-role socialization. Degree of schematization was significantly related to the majority of dependent measures employed in the present study whereas gender constancy was not. Moreover, our data indicated that children attributed differences between themselves and others based on gender-related factors (sex and toy-play appropriateness) in a fashion which was inconsistent with their responses to questions on the gender constancy interview. The overall pattern of results leads us to question the viability of the construct of gender constancy as a basis for early sex-role socialization. Rather, we would advocate further empirical investigation of the construct of gender schema and its correlates as a means of explaining the process of sex-role socialization.

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